

Online Resource 2: Newcastle-Ottawa Scale (NOS) quality assessment explanation

Article title: Sarcopenia and its Association with Falls and Fractures in Older Adults: A Systematic Review and Meta-Analysis

Journal name: Journal of Cachexia, Sarcopenia and Muscle

Author names: Suey S.Y. Yeung, Esmee M. Reijnierse, Vivien K. Pham, Marijke C. Trappenburg;
Wen Kwang Lim, Carel G.M. Meskers, Andrea B. Maier

Corresponding author: Andrea B. Maier, Department of Medicine and Aged Care, The Royal Melbourne Hospital, The University of Melbourne, City Campus, Level 6 North, 300 Grattan Street, Parkville, Victoria 3050, Australia

E: andrea.maier@mh.org.au; T: +61 3 9342 2635; F: +61 3 9342 7866

Cohort studies

Note: A study can be given a maximum of one star for each numbered item within the Selection and Outcome categories. A maximum of two stars can be given for Comparability.

Selection

1. Representativeness of the exposed cohort with sarcopenia
 - a. Subjects representative of the average subjects aged 65 years and older with sarcopenia *
 - b. Not representative or no description
2. Selection of the non-exposed cohorts: subjects without sarcopenia drawn from the same population as the exposed cohort
 - a. Yes *
 - b. No
 - c. No description of the derivation of the non-exposed cohort
3. Ascertainment of exposure: how is sarcopenia diagnosis made
 - a. Sarcopenia diagnosed with muscle mass using BIA, DEXA, MRI or CT scan *
 - b. Sarcopenia diagnosed with muscle mass using BIA, DEXA, MRI or CT scan and muscle strength (handgrip)/physical performance (gait speed)*
 - c. Sarcopenia diagnosed with muscle mass, muscle strength or physical performance using methods other than those listed above (e.g. calf circumference, SPPB, TUG).
 - d. No description or unclear
4. Demonstration that falls/fractures outcome was not present at start of study
 - a. Yes*
 - b. No

Comparability

1. Comparability of cohorts on the basis of the design or analysis controlled for confounders
 - a. Study controls for: age and/or sex*
 - b. Study controls for age and/or sex plus other factors*
 - c. Cohorts are not comparable on the basis of the design or analysis controlled for confounders

Outcome

1. Assessment of falls/fractures outcome
 - a. Observed/assessed by physician*
 - b. Medical/hospital records as the primary source*
 - c. Self report
 - d. No description
2. Was follow-up long enough for fall/fractures outcomes to occur
 - a. Yes, ≥ 6 months *
 - b. No, < 6 months
3. Adequacy of follow-up of cohorts
 - a. Complete follow up- all subjects accounted for *
 - b. Subjects lost to follow up unlikely to introduce bias- number lost less than or equal to 20% or description of those lost suggested no different from those followed *
 - c. Follow up rate less than 80% and no description of those lost
 - d. Not described

*= one star

Case control studies

Selection

1. Is the case definition adequate?
 - a. Yes, observed/assessed by physician*
 - b. Yes, Medical/hospital records as the primary source*
 - c. Self report
 - d. No description
2. Representativeness of the cases
 - a. Consecutive or obviously representative series of cases*
 - b. Potential for selection biases or not stated
3. Selection of controls: controls are derived from the same population as the cases
 - a. Community controls (i.e. same community as cases)*
 - b. Hospital controls, within the same community as cases but derived from a hospitalised population
 - c. No description
4. Definition of controls
 - a. No history of falls/fractures *
 - b. No description of source

Comparability

1. Comparability of cases and controls on the basis of the design or analysis
 - a. Study controls for: age and/or sex*
 - b. Study controls for age and/or sex plus other factors*
 - c. Study not controlling for any confounding factors.

Exposure

1. Ascertainment of exposure
 - a. Sarcopenia diagnosed with muscle mass using BIA, DEXA, MRI or CT scan *
 - b. Sarcopenia diagnosed with muscle mass using BIA, DEXA, MRI or CT scan and muscle strength (handgrip)/physical performance (gait speed)*
 - c. Sarcopenia diagnosed with muscle mass, muscle strength or physical performance using methods other than those listed above (e.g. calf circumference, SPPB, TUG).
 - d. No description or unclear
2. Same method of ascertainment for cases and controls
 - a. Yes*
 - b. No
3. Non-response rate
 - a. Same rate for both groups *
 - b. Non respondents described
 - c. Rate different and no designation

*= one star

Adapted for cross-sectional studies

Selection (Maximum 3 stars)

1. Representativeness of the sample
 - a. Subjects representative of the average subjects aged 65 years and older *
 - b. Not representative or no description
2. Selection of the non-exposed subjects: subjects without sarcopenia drawn from the same population as the exposed subjects
 - a. Yes*
 - b. No
 - c. No description of the derivation of the non-exposed subjects
3. Ascertainment of exposure: how is sarcopenia diagnosis made
 - a. Sarcopenia diagnosed with muscle mass using BIA, DEXA, MRI or CT scan *
 - b. Sarcopenia diagnosed with muscle mass using BIA, DEXA, MRI or CT scan and muscle strength (handgrip)/physical performance (gait speed)*
 - c. Sarcopenia diagnosed with muscle mass, muscle strength or physical performance using methods other than those listed above (e.g. calf circumference, SPPB, TUG).
 - d. No description or unclear

Comparability (Maximum 2 stars)

1. The subjects in different outcome groups are comparable, based on the study design or analysis. Confounding factors are controlled.
 - a. Study controls for: age and/or sex*
 - b. Study controls for age and/or sex plus other factors*
 - c. Study not controlling for any confounding factors.

Outcome (Maximum 2 stars)

1. Assessment of falls/fractures outcome
 - a. Observed/assessed by physician*
 - b. Record linkage *
 - c. Self report
 - d. No description
2. Response rate
 - a. Rate of sample loss $\leq 20\%$ *
 - b. Rate of sample loss $> 20\%$
 - c. Not stated

*= one star